

STRENGTHENING TECHNOLOGY TRANSFER CAPABILITIES OF LOUISIANA UNIVERSITIES

Prepared for the Louisiana Department of Economic Development
by A. M. Pappas & Associates

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INTRODUCTION

The Office of the Secretary of the Louisiana Department of Economic Development (LED) and A. M. Pappas & Associates have entered into a special services contract. The goals of the contract were to identify what is needed to (a) strengthen technology transfer and commercialization capabilities and processes at Louisiana public universities for economic development purposes and (b) achieve the goals and objectives of *Louisiana: Vision 2020*, the state's master plan for economic development. The goals were accomplished by;

- Evaluating and suggesting changes to the public universities' intellectual property, tangible property and conflict of interest policies and the existing programs, practices and operations of the existing technology transfer offices;
- Presenting a series of workshops and coaching sessions to (a) the technology transfer officers from Louisiana's universities, and (b) to the leadership from universities, both the system and campus levels; the Board of Regents and LED; and,
- Providing benchmarks against the best practices of two peer universities.

University performance in technology transfer and commercialization is clearly important for industry development and growth since direct commercialization can often come from university research results. Louisiana's long-term efforts to foster a critical mass of entrepreneurial companies will fall short without technology commercialization mechanisms that accelerate and encourage the commercialization of Louisiana's research discoveries. The objectives of the contract were to enhance the understanding of (a) the role of university and economic development leadership in communicating the importance of university technology transfer, (b) how to develop the university technology transfer office framework necessary for an economic development priority, (c) how to implement best practices in university technology transfer, and (d) to establish benchmarks for monitoring the future performance of Louisiana public universities in the area of technology transfer by utilizing key indicators, such as the number of disclosures, patent applications, licenses signed, license revenue, startups, equity arrangements made, and related measures.

The expected outcome of the contract will be for the leadership of LED, the Board of Regents and Louisiana public universities to (a) identify the key issues regarding technology transfer and commercialization, including how to bridge the gap between innovations and discoveries made in university research laboratories and commercial development of those research discoveries, (b) identify key elements that need to be in place within Louisiana universities and LED, and

(c) have a better understanding and ability of how to implement the necessary technology transfer framework within the universities in order to accomplish the goals and objectives of *Louisiana: Vision 2020* related to university technology transfer and research and development focused on market-pull commercialization. The recommendations in this report will assist LED in its charge to help the Louisiana Economic Development Council (LaEDC) Science and Technology Task Force achieve its mission and implement recommendations put forth in the *LaEDC Action Plan 2002* and *Action Plan 2003*.

The contract services were provided by A. M. Pappas & Associates' Francis J. Meyer, Ph.D., Vice-President, Enterprise Development. Dr. Meyer's biographical sketch is provided in Exhibit A.

SCOPE OF THE CONTRACT

PHASE I

The scope of Phase I was to make an initial visit to Louisiana and to evaluate and, as appropriate, (a) suggest changes to the intellectual property, conflict of interest and tangible property policies applicable to Louisiana's public universities and colleges {Louisiana State University System (LSU) and University of Louisiana System (UL)} and (b) provide benchmarks against the best practices of two other universities, which were mutually agreed upon by LED and A. M. Pappas & Associates. Suggestions for the two peer institutions were received from LSU and UL leadership.

PHASE II

The scope of Phase II was to evaluate and, as appropriate, suggest changes to the existing programs, practices and operations (including the formation of university spin-out or start-up companies) of nine technology transfer offices (six from LSU and three from the UL) to maximize the return from technology transfer activities to the universities, colleges, and the State of Louisiana, including the formation of university spin-out companies. This phase was accomplished by initially asking the individuals responsible for the nine technology transfer offices to provide a written description of the existing programs, practices and operations by completing a survey. After review of the survey information follow-up telephone interviews were conducted to obtain additional information and to clarify the survey information.

PHASE III

The scope of Phase III was to present two (2) workshops describing the best practices in technology transfer and to recommend changes to the existing policies, programs, practices and operations (including the formation of university spin-out companies) to the technology transfer officers from Louisiana's universities. Workshop attendees included university technology transfer personnel extending beyond the nine offices. The workshops were interactive and the participants provided feedback and suggestions on the needs to strengthen the capabilities of Louisiana's university technology transfer offices and initiatives.

PHASE IV

The scope of Phase IV was to establish benchmarks that will chart the progress of Louisiana's public university technology transfer offices.

PHASE V

The scope of Phase V was to present two workshops and coaching sessions describing the best practices in technology transfer, along with the results of Phases I - IV, to the leadership of public universities and LED. This report contains the recommended changes to the intellectual property, tangible property, and conflict of interest policies and to the technology transfer programs, practices and operations of Louisiana's public universities. The report also contains benchmarks against the two peer universities with recommendations on how to improve outcomes.

The activity of the five phases is intended to satisfy the Louisiana Economic Development Council's recommendation to "evaluate Louisiana's university technology transfer policies and practices and benchmark them against national best practices, with recommendations on how to improve outcomes".

PARTICIPATING AND BENCHMARK PEER UNIVERSITIES

The LSU System and the UL System participated in all aspects of the contract. For the portions of the project involving the evaluation of the policies, programs, practices and operations of the existing technology transfer offices; the following research-intensive campuses participated: LSU: LSU Agricultural and Mechanical College, LSU Agricultural Center, University of New Orleans, LSU Health Sciences Center – New Orleans, LSU Health Sciences Center - Shreveport, and Pennington Biomedical Research Center; and UL: Louisiana Tech University, University of Louisiana at Lafayette, and University of Louisiana at Monroe.

All of the above mentioned campus technology transfer representatives along with representatives from Grambling State University, LSU in Shreveport, McNeese State University, Nichols State University, Northwestern State University, Southeastern Louisiana University, Southern University Agricultural & Mechanical College (SU), and Tulane University participated in the technology transfer officers workshop. The workshop and coaching sessions describing the best practices in technology transfer and the results of Phases I – IV were attended by the system and campus leadership from the LSU System, Southern University Agricultural & Mechanical College and the University of Louisiana System.

The Texas A&M System (TAM) and the University of North Carolina System (UNC) were selected as the two peer institutions for benchmarking purposes. They were selected because of their similarities to the LSU (9 campuses), Southern (5 campuses) and UL (8 campuses) Systems and because they are viewed as aspirant university systems in the areas of technology transfer and commercialization, start-up company formation, industry collaborations, and they place a priority on economic development. TAM and UNC have a mixture of research intensive and less research-intensive campuses. TAM (10 campuses) has a significant agricultural component and also a health science component. Texas is a border state to Louisiana. UNC (16 campuses) has an agricultural component, has two health science centers, and has an urban campus (Univ. of Charlotte) similar to University of New Orleans urban campus. Both

TAM and UNC like LSU, SU and UL, have several campuses that are "less research-intensive", as well as several campuses in largely rural agricultural-intensive areas. North Carolina (8 million) has a population relatively similar to Louisiana's (5 million).

TAM and UNC were also selected because they each had one of their campuses selected in the top ten universities as "a new model for the American university as a partner in its regional and state economy". This quotation is from the book *Innovation U.: New University Roles in a knowledge Economy* published by Southern Growth Policies Board, 2002. From the UNC System, North Carolina State University campus was ranked No. 2 and from the Texas A&M System, Texas A&M campus at College Station was ranked No.6.

Innovation U. is an excellent source of information on "universities that are doing a particularly good job of building alliances with industry and playing active roles in economic development of their regions."

SUGGESTED CHANGES, RECOMMENDATIONS, BEST PRACTICES AND BENCHMARKS FOR LOUISIANA'S PUBLIC UNIVERSITIES

Eight critical success factors were selected for the purpose of defining and presenting the suggested changes, recommendations, best practices and benchmarks for future priority actions by Louisiana's public universities. The eight critical success factors are listed below.

- I. Leadership Commitment and Communication
- II. Technology Transfer Policies
- III. Mission and Structure of the Technology Transfer Office
- IV. Practices, Procedures and Audits
- V. Outreach and Education
- VI. Customer Satisfaction and Surveys
- VII. Activities, Achievements and Publicity
- VIII. Measures of Success

For each of the eight critical success factors the suggested changes and recommendations are presented followed by the benchmarks to be used by Louisiana's public university systems and campuses. The suggested changes and recommendations are based on the best practices of TAM and UNC and on the author's eighteen years of technology transfer experience. The benchmarks are the roadmaps to be used by both the systems and the campuses to monitor the progress of implementing the suggestions and recommendations.

The specific suggested changes, recommendations, best practices and benchmarks for the eight critical success factors are presented in the following pages.

I. LEADERSHIP COMMITMENT AND COMMUNICATION

The leadership of Louisiana public universities - at the system, campus, college and departmental levels - needs to communicate the importance of industry collaborations and technology transfer with an economic development priority. The ongoing communications should be to a wide audience, both internal and external to the university. The internal audience is the faculty, staff and students at undergrad, graduate and post-graduate levels. The external audiences are the legislature, Louisiana Economic Development, economic development organizations, industry, and the public at large.

There are several global messages to be disseminated. One is that since taxpayer's money is used for university research, the taxpayers should benefit through the creation of new jobs and the introduction of new products and services based on university research results. Another message is that technology transfer is a good and important activity and the university researchers have an obligation to participate. Another is to communicate the incentives that exist for those who participate in technology transfer activities. Several examples are listed below.

- Technology transfer is one way to fulfill the public service mission of a state university
- Tax payers benefit from an innovative culture that emerges from strong industry / university relationships
- Technology transfer initiatives assist economic development efforts of the local region, state, and the United States
- Researchers participate in the distribution of the licensing income when their invention is licensed
- Technology transfer successes generate money for research and education purposes

The faculty and staff may not have received these messages in the past and therefore the messages should be sent often and in various formats. The importance of participation in tech transfer is best incorporated in mission and vision statements and in policies, websites, publications and speeches. Universities should communicate that participation in industry collaboration, technology transfer and economic development are part of the state university's public service mission. That should also be publicized in an annual letter to faculty and staff and by announcing the hiring of new faculty who has a successful track record in industry collaboration, licensing of inventions and start-up companies.

For many of Louisiana's campuses there is a real need for a culture change program to drive home the point of the importance and appropriateness of participating in industry collaborations and technology transfer activities. The culture change starts with the system president and is then worked down through the campus chancellors/presidents and all other levels of leadership. To be most effective, the leadership should refer to the strengthened emphasis on industry collaborations and technology transfer with an economic development priority as a culture change. Other successful universities have done so. Leaders should incorporate the following strategies:

- Use as examples other universities that have successfully effected the culture change. Good examples are TAM and UNC.
- Use as examples the increase in the number of invention disclosures, patent applications filed and licenses granted to companies.

- Spread the word by publicizing the success stories – new industry collaborations, licensing deals to in-state companies, a new start-up company located in-state to commercialize a new platform technology are a few examples.
- Communicate the success stories via university web sites, campus newsletters, research magazines, alumni magazines and press releases to the media.

Leadership should incorporate these messages in their speeches and other modes of communication. At several universities that have successfully affected a technology transfer culture change, an important part of the program was an annual letter to the research faculty and staff - written by the chancellor and president - mentioning the importance and appropriateness of involvement in tech transfer. They also mentioned the latest success stories and new initiatives of the tech transfer office such as educational seminars and outreach sessions sponsored by the technology transfer office.

In addition to communicating the importance of technology transfer culture change and leadership's commitment to it, the successful culture change program may also require an examination of and change to the incentives and rewards provided to administration, faculty and staff for participation in technology transfer. Examples are listed below.

- Sharing of the campus (chancellor and president) portion of license income, for education and research purposes, at a broad range of levels – office of the chancellor and president, dean, department of the inventor and inventor's research fund and technology transfer office for patent filings and other legal expenses
- Consider including participation in technology transfer successes as a criteria for tenure and promotion
- Recognition events with presentation of awards honoring inventors and entrepreneurs

Policy and practice changes are often necessary to achieve a culture change. Policies and practices are addressed throughout this document.

The TAM & UNC technology transfer office websites have good examples of appropriate communication messages.

BENCHMARKS

- Develop and implement the culture change plan for the system and each campus
- Evaluate progress annually
- Measure the success of the culture change campaign by using metrics such as research expenditures, invention disclosures, patent applications, licenses, start-up companies and in-state industry research collaborations

II. TECHNOLOGY TRANSFER POLICIES

The suggested changes and recommendations in the policy area vary depending on the university system and the campus. For the systems that do not have complete and up-to-date technology transfer policies (which include inventions, patents, intangible and tangible property, copyright, licensing and start-up companies and conflict of commitment and interest policies at both the system level and for each campus), the first order of business is to complete this task.

Policies should be placed on the appropriate websites, in the faculty, staff and students' handbooks and in the appropriate system and campus periodical publications.

For those systems and/or campuses that have approved up-to-date policies, the policies should be reviewed periodically to be sure that they are perceived by the staff, faculty and industry to be complete, meet the norm of their peer institutions, and user friendly. If the policies do not meet those criteria, they should be updated and if state laws prohibit policy changes the law should be changed. That is what the state of Texas did to develop a user friendly culture.

Industry has a choice of dealing with over 200 research-intensive universities in the United States and is attracted to those that are perceived to have up-to-date and user friendly policies, practices, and technology transfer personnel. It is important the technology transfer personnel stay informed regarding the norms in university policy, practices and negotiation models. It is also important for the university technology transfer officials to take the time to provide outreach and education to companies that may not be aware of what is the norm in university policy and negotiation practices. Industry should be provided with materials to demonstrate what the norm is and that Louisiana universities meet or exceed the norm and are user- friendly to companies with respect to their policies and practices.

During the conduct of this project, several policy issues were repeatedly mentioned. They, along with other policy issues, are listed below and should be addressed on a priority basis. The university should revise the policies to meet today's norm. There are many sources of model policies and agreements from Louisiana's peer universities. The sources are TAM, UNC, and Association of University Technology Managers (AUTM) websites, AUTM Technology Practice Manual, AUTM educational series and AUTM 2002 Director's kit. The specific policy issues to be addressed are listed below.

- Invention ownership in industry sponsored research agreements should be clarified.
 - In the US, the norm is for a first right or option to an exclusive royalty-bearing license to inventions made at the university during the course of the sponsored research to be granted to companies sponsoring research in university labs. Flexible negotiation is a practice norm. Louisiana universities follow that policy norm and some follow the practice norm, however some Louisiana company personnel and others have the perception that Louisiana universities do not meet either the policy or practice norms. This perception continues to exist and the issue should be clarified. One should note that perception is a problem not only in Louisiana, but also in other states.

Since Louisiana universities meet the policy norm, there is no need to change the policy but universities should correct the misperception by providing the facts on what is the norm and stating that Louisiana universities policies meet the norm. However Louisiana universities should also work to improve and/or maintain the practice norms, consistent with federal laws and regulations and their own policies, in their negotiation of the license and other terms contained in the sponsored research agreements. Successful, aspirant universities are frequently flexible in such terms. One example of flexibility is to broadly pre-define the financial terms of a license to inventions of specified types in the sponsored research agreement.

- The approval process to allow faculty to consult with companies should be less time consuming and not require more than a few (one to three) approval signatures.
 - The various types of allowable consulting arrangements can be and should be predefined. Depending on the type of arrangement, the number of signatures should also be predefined and minimized. For the rare instance when a given proposed arrangement does not fit one of the predefined categories, it is understandable that it may undergo a committee review and take a bit longer than the routine cases. The above-described process is the norm.
- The wording of university policy and the practice on faculty/staff invention ownership in consulting agreements and arrangements should be reviewed and changed if they do not meet the norm.
 - Universities generally rely on their technology transfer and conflict of commitment and interest policies and the honesty of their faculty and staff to insure that inventions made by their faculty and staffs are appropriately assigned to their rightful owner. The norm is that the rightful owners are the university when the inventions fall under university policy (including when made as part of a company sponsored research agreement at the university). The norm is that the rightful owners are an outside organization (company) when inventions are made during consulting activities outside of their university employment and outside of the university. Some universities require review and prior approval of consulting agreements and some do not require review and pre-approval of consulting agreements. All should require that such consulting activities and arrangements comply with federal regulations and university policy.

There is a perception that Louisiana universities make it difficult for their faculty and staff to get approval to perform consulting activities and in some instances universities demand ownership of any invention made while their faculty are consulting for a company. The universities should review their policies and practices in this area and if outside the norm, make changes to meet the norm. If universities are within the norm, they should communicate the consulting policies and practices to companies and faculty. In addition to the previously mentioned resource materials, the American Association of Medical Colleges website has useful materials in this area.

- The policy of requiring university prior approval of sub-licensees in license agreements is not the general norm and universities should consider removing this requirement
- The policy on distribution of litigation proceeds should be modified
- A mechanism for dispute resolution should be included in technology transfer policies
- It would be beneficial to mention in relevant university technology transfer policies that some policies and some provisions of policies exist because of federal and state government requirements; examples are Bayh Dole law and federal and state conflict of interest policies

- In university spin-out or start-up company arrangements where the institution and/or inventors own equity, clearly define under what circumstances simultaneous consulting and/or sponsored research agreements with the licensee company may take place; develop policies and practices that allow for an efficient and time-sensitive process for approval; TAM and UNC have such policies and practices that meet these criteria
- Be sure to include tangible intellectual property in the technology transfer policies
- Present a flexible attitude toward agreement negotiation and be willing and capable of exploring a range of win/win options
- In instances where Louisiana law or institutional policy is not the norm, display flexibility in negotiation and consider changing the law or policy
- Define policy on licensing know-how and business algorithms and certain forms of original works of authorship such as art and entertainment
- Each campus, whether research intensive or less research intensive, should have on the campus website a statement on technology transfer, the technology transfer policies, and the name of the office and person to contact
- Technology transfer offices should have a more efficient and time-sensitive procedure for engaging not previously engaged intellectual property attorneys

BENCHMARKS

- Develop and implement a plan and schedule to develop and/or update all technology transfer policies at both the system and campus level
- Insure each campus, with or without a TTO, has appropriate policies and name of contact person on web and in faculty handbook
- Examine each policy for user unfriendly wording such as “in exceptional circumstances” and remove such wording
 - All policies should be faculty & industry friendly
- Develop and implement a plan and schedule to deal with the perception and reality of invention ownership in industry sponsored research agreements and consulting agreements and arrangements
 - Consider establishing advisory committees made up of university faculty and staff, peer institution technology transfer personnel, and “friends of the university” from industry to insure policies are user friendly and meet the norm
- Monitor performance to meet targets

III. MISSION AND STRUCTURE OF THE TECHNOLOGY TRANSFER OFFICE

It is important that each system and campus define the mission, goals and role each play in the technology transfer and industry collaborative activities. Several models employed by universities are listed below. The models may be combined, for example the first model may be combined with any of the others.

1. One entry point for industry; the company is then directed to the appropriate office (e.g. Georgia Tech)
2. One stop shopping for faculty and industry pertaining to technology transfer, industry sponsored research, material transfer agreements, industry pre-clinical and clinical trials, etc. (e.g. Johns Hopkins University)
3. Separate offices for technology transfer and industry collaborations, clinical trials, etc. (found in many universities)
4. Combined technology transfer and sponsored research in one office (e.g. Stanford)
5. One office that is responsible for all university-industry interactions including purchasing, etc. (e.g. Duke University)
6. Traditional technology transfer office managing inventions, patent/copyright filings, marketing, licensing, start-up companies, material transfer agreements, and building relationships with industry with an emphasis on in-state companies (found in many universities)

SIZE OF THE TTO

- While any of these models can be made to work at any university, for those systems and campuses which do not yet have a technology transfer office, the first step should be to establish an office providing only traditional technology transfer services (model six above).
- For a less research-intensive campus without a technology transfer office on the campus, a system-level person could be designated to serve several campuses.
- For campuses with a small technology transfer office (5 to 15 new inventions per year, 1.5 FTEs, annual office operating budget of \$200,000 and annual patent/legal budget of \$150,000), it is best to start with modest expectations and provide limited services to the schools/departments most likely to make inventions with commercial potential. In this instance, the sponsored research office would handle the industry-sponsored agreements.
- For those campuses with a modest size tech transfer office (15 to 30 new inventions per year, 3 FTEs, annual office operating budget of \$410,000 and annual patent/legal budget of \$300,000), focus should be on improving the staff size and the amount of funding and concentrate on the traditional technology transfer activities.

- An aspirant university campus with 150 new inventions per year will typically have 10 FTEs, annual operational budget of \$1.0mm and a patent/legal budget of \$1.0mm.
- The technology transfer office, depending on the level of maturity, in a typical year should expect to have between 30 % (less mature) and 70% (more mature) of the patent/legal fees be reimbursed.

BEING USER FRIENDLY

The key, regardless of the size, is to be user friendly with faculty and staff, companies, and government. Also focus on achieving arrangements with industry to sponsor research, service work, and use of specialized campus equipment including core facilities. Focus on providing excellent service to the customers of the technology transfer office, which are the faculty, students, companies and the cluster directors and others in the LED.

The term “user friendly” is used several times in this report. With respect to policies and practices, user friendly means they meet the norm of peer institutions and industry finds them attractive and wants to do business with the university. Essentially, the term means to find a way to please your customers. That is accomplished by:

- Providing adequate outreach/educational presentations and leave behind/web materials,
- Being timely in your responses to your customers,
- Demonstrating skill and willingness to negotiate and work with your customers,
- Being professional and factual in explaining why an invention will not be patented and/or marketed.

About 70% of the inventions received by the technology transfer office will not be licensed. It is important to take the time to explain why the marketplace will not or has not decided to license the invention.

MISSION

(FOR TTO’S FOCUSED ON AN ECONOMIC DEVELOPMENT PRIORITY)

For every public university, part of the mission should be to advance economic development in the state, which means working for job creation and increased investment. This focus emphasizes the development of ideas and solutions to problems. The goal is not to get the patent, but to close the deal. The technology transfer office’s priority is getting the technologies into the marketplace.

Generating an immediate revenue stream for the university should not be the primary goal of a technology transfer office -- this is shortsighted. When universities are truly seeking to build relationships with industry, the wrong first questions for a technology transfer official to consider are “What can this company do for the university?” and “How much can I get upfront from this deal?”

The top question for technology transfer officials should be “How can we structure a deal that will help get the technology out into the marketplace?” If a technology is successful in the marketplace, the money is more likely to flow. Technology transfer officials should seek to generate considerable activities, which in turn will create more opportunities to build relationships with industry and provide opportunities for industry to recognize the resources a university can offer. Money will flow as a natural progression. Relationship building is a

process and demonstrating the ability to be a valuable resource for industry or goodwill in helping entrepreneurs requires flexibility.

PERSONNEL

The essential characteristics of professional personnel employed by the technology transfer office are listed below.

- Have a passion to serve the faculty, industry, LED, and to find a way to close the deals in a prompt manner consistent with university policy
- Be an entrepreneur with education and experience in an appropriate scientific, engineering, technology background to complement the research strengths of the campus
- Have the ability and enthusiasm to market technologies
- Be knowledgeable in intellectual property and contract law
- For campuses with a life science component, have knowledge of and experience with FDA, agriculture department, and EPA regulations and practices
- Be a good negotiator. A good negotiator is one who is well informed on the terms of comparable deals and willing to provide the data, reasonable in offering and accepting terms, and displays an attitude of flexibility in negotiations to get to a win-win outcome in a reasonable time
- Have excellent communication skills

The university technology transfer office is a business unit within the university. Keep in mind the company official negotiating with the university technology transfer official will be an experienced person with the characteristics described above.

BENCHMARKS

- Define mission & goals of the system and campus technology transfer offices
- Develop and implement a plan for outreach to faculty, industry & LED
- Employ technology transfer personnel with the characteristics listed above
- System office should be a mentor and monitor campuses for progress
 - Tailor to individual campuses; one size does not fit all
 - Regardless of the size, adequately fund the technology transfer office using the above guidelines for each campus (or group of campuses, depending on the need of the system)

IV. PRACTICES, PROCEDURES AND AUDITS

NEEDS OF THE TECHNOLOGY TRANSFER OFFICE

The university leadership should carefully examine the level of funding and other support provided to the technology transfer office and compare it to peer universities, the guidelines provided in the prior section of this report and using the metrics in the AUTM annual survey. It is important to decide what level of support is appropriate and then set expectations accordingly. My overall impression from working on this project and reviewing the AUTM survey data over many years is that the existing Louisiana public university technology transfer offices are understaffed and under-funded. Below is a list of specific items that are required to strengthen Louisiana's public university technology transfer offices.

- Increase the staff both at the licensing and support levels
- Increase the amount of funding for patent filings and other legal expenses
- Acquire software to track and manage inventions, patents, agreements and contacts
- Acquire directories and databases of potential licensee companies
- Upgrade the support for the technology transfer offices website including the ability to timely post the inventions for licensure; timely export the patents and inventions available for licensure to the Louisiana Intellectual Property Directory website
- Technical assistance for intellectual property assessments
- Scientific assistance for commercial potential assessment
- Achieve timely triage and marketing of inventions
- Complete faster approval of new IP attorneys
- Begin providing electronic invention reporting to research sponsors

Given the needs, one consideration is to outsource some of the activities of the technology transfer office. For campuses with a technology transfer office but with insufficient staff it is possible to outsource some of the activities. There are various models that have been successful. One such organization was the Triangle University Licensing Consortium (TULCO). TULCO was formed in the mid 1980's by the three research-intensive universities in the Research Triangle Park area. TULCO, with a staff of licensing professionals, assisted the three universities with invention evaluation for intellectual property protection and commercial potential as well as marketing of inventions and license negotiation. TULCO was dissolved in 1995 when the universities established their own on-campus self-sufficient technology transfer office. For Louisiana, a viable strategy that is already in progress is the recently formed LSU System Research & Technology Foundation, which is expected to provide technology transfer services to Louisiana universities on a fee for service basis, and is supported by LED.

INTERNAL AUDIT

Each campus should be audited at least every two years to insure the technology transfer policies, practices and operations are in compliance with federal and state laws and regulations, the terms of foundation & industry grants and contracts, university approved policies and practices, and other items as suggested by system and campus administration and the technology transfer office director. Serious harm may ensue to the university if, for example, the regulations under Bayh Dole are not followed. The federal government started auditing technology transfer offices for compliance to Bayh Dole in the early 1990's. Compliance failure may result in loss of all federal funding.

BENCHMARKS

- Provide adequate funding and support for the TTO based on realistic mission & goals
- Expand mission and grow the technology transfer office as researchers, industry & LED participate to a greater extent
- Provide adequate staff, competitive salary, funding for legal, office equipment, web, software, databases, directories, travel, good location on campus
- Determine if the technology transfer office is staffed with entrepreneurial personnel as described above and if not take appropriate action
- Schedule initial audits as soon as possible and then every two years thereafter

V. OUTREACH AND EDUCATION

CAMPUS RESEARCHERS AND STAFF

To insure success of the technology transfer office, its personnel should make outreach presentations on an ongoing basis and provide educational materials to teach the process of technology transfer to the faculty and student researchers. Many university researchers do not think in terms of “have I made an invention?”. Or if they think of it, they may not readily know whom to contact to initiate the process. Outreach programs to campus researchers by technology transfer office personnel are best made to groups of 50 or fewer people in an informal interactive setting such as a departmental or college faculty meeting. The presentation should include the technology transfer process and best practices, roles of the technology transfer office, the researcher/inventor, and the patent attorney, provide names of faculty role models and examples (in the same technical area of expertise as the audience) of university inventions that have been licensed and successfully turned into products by industry. The role models are fellow campus researchers/inventors who have successfully made licensed inventions and/or been a founder/scientific advisor of a university spinout or start-up company.

INDUSTRY

Industry outreach sessions are made to individual companies, law and accounting firms, investor groups and to other groups at technology transfer meetings and seminars. The sessions may be targeted to specific topics or a general discussion on technology transfer policy, process, operations, inventions available for license, and showcasing of campus research areas of strength for sponsored research collaborations. This is an opportunity to display the customer friendly and market driven attitude of the technology transfer personnel.

LOUISIANA ECONOMIC DEVELOPMENT CLUSTER DEVELOPMENT DIRECTORS

The LED cluster development directors are a valuable resource in creating linkages with Louisiana industry and the campus researchers and technology transfer office. Periodic meetings with the appropriate directors, industry personnel, campus researchers and technology transfer office personnel should foster a collegial collaborative environment and lead to more technology transfer deals.

BENCHMARKS

- Define how to best provide outreach on each campus, to industry and LED
- Develop and implement a plan to provide at least two (to start) outreach programs per month
- Monitor the progress made with all three customer segments

VI. CUSTOMER SATISFACTION AND SURVEYS

It is important for technology transfer office personnel to identify their customers and insure that they are serving them in an ongoing satisfactory manner. The campus faculty and student researchers, senior administration (chancellors and presidents, deans, department chairs, center and institute directors) are the internal customers, while industrial companies, LED and economic development organizations are external customers.

Two important ways to determine the customer satisfaction level are to conduct periodic surveys and have annual meetings. Annual meetings are best held with the various academic units that have the most actual or potential need for the services provided by the technology transfer office. The annual meeting is a time for the technology transfer office to present the results of the current year and discuss the priorities and needs for the coming year.

BENCHMARKS

- Develop and implement a plan to measure the satisfaction level of the two customer segments
- Conduct a satisfaction survey to establish a baseline and track the satisfaction level by conducting surveys at least every two years
- Hold annual meetings
- Review the results and promptly take corrective action as necessary

VII. ACTIVITIES, ACHIEVEMENTS AND PUBLICITY

ACTIVITIES AND ACHIEVEMENTS

Success is measured by comparing the system and campus technology transfer metrics with aspirant peer institutions. The annual AUTM Survey is a convenient tool to use for this purpose. A successful technology transfer program starts with good research both in quantity and quality. It is judged to be successful when the license agreements and the industry sponsored research agreements are signed, when the spinout and start-up companies are formed and more in-state jobs are created because of the successful transfer of university technology. When all of the above takes place the money will follow. Money should not be the primary focus, expeditiously and fairly negotiating and signing the deals should be the focus.

PUBLICITY

Giving publicity to the activities and achievements of the campus researchers, inventors and technology transfer office is an important element of marketing the research results of the university. Below is a listing of examples of such publicity.

- Annual reports of the campus technology transfer activities and achievements
- Combining the campus reports into a system wide annual report
- Participation in the annual AUTM survey
- Giving press on a real time basis to success stories on research discoveries, licensing and Industry sponsored research deals completed, formation of start-up companies based on university technology, and the number of new jobs created and new products commercialized from technology transfer accomplishments

BENCHMARKS

- Compare your campus technology transfer metrics with aspirant peer universities
- Determine what is needed to achieve your target goals
- Develop and implement plan to achieve your target goals
- Monitor the metrics annually to insure you remain on target

MEASURES OF SUCCESS

The ultimate measures of success are in finding ways to keep your customers happy, achieving the timely triaging, and marketing of inventions, and closing an appropriate number of licenses, start-up companies, and industry sponsored research agreements in an efficient manner.

BENCHMARKS

- Use the benchmarks in the prior seven critical success factor sections
- Use the benchmarks in the next section

BENCHMARKS TO BE USED BY THE LOUISIANA ECONOMIC DEVELOPMENT COUNCIL'S SCIENCE AND TECHNOLOGY TASK FORCE TO MEASURE THE PROGRESS OF LOUISIANA'S UNIVERSITIES

This final section of the report contains the suggested benchmarks that the Louisiana Economic Development Council's Science and Technology Task Force should use over the next five years to track the progress toward Goal Two, Objective 2.4 *Louisiana: Vision 2020's 2003 Update*.

Goal Two is: "To build a thriving economy driven by innovative, entrepreneurial, and globally competitive companies that make productive use of technology and the state's human, educational, and natural resources."

Objective 2.4 is: "To provide effective mechanisms for industry access to university-based technologies and expertise."

The current benchmarks to track the progress toward Objective 2.4 are:

- Number of licenses completed (total and percentage to Louisiana companies)
- Number of university cooperative endeavor agreements with companies

The author suggests the Louisiana Economic Development Council's Science and Technology Task Force ask the Board of Regents and the university systems to use the following benchmarks for tracking data over the next five years. These benchmarks provide the foundation for charting the growth of the two benchmarks used in Vision 2020 and should be tracked at both the university system and campus levels. *Louisiana Vision 2020* is a living document and is updated every five years. The next update is scheduled for 2008.

- Total amount of sponsored research expenditures
 - Number of industry sponsored research agreements
 - Total amount of industry sponsored research expenditures and the amount
 - From in-state companies
 - From licensee companies
- Support for the technology transfer office
 - Total funding for the operation of office and for patent and other legal expenses
- Number of technology transfer staff by licensing and administrative personnel
- Number of outreach programs to faculty, industry, LED
- Number of invention disclosures, patent applications, patents, number of licenses and options, start-up companies (total and percentage of Louisiana companies)
- Adjusted gross license income received

Whenever possible, for the above metrics use the definitions from the AUTM Annual Survey.

The tracking benchmarks suggested in the report are more detailed than those in *Louisiana: Vision 2020's 2003 Update*. The suggested benchmarks will allow for tracking progress upstream from the current benchmarks that are listed above. If the benchmarks upstream of the number of licenses and cooperative agreements are not first identified, implemented and monitored, it will be considerably longer for the universities to achieve an appropriate increase in licenses and industry sponsored research agreements.

CONCLUDING COMMENTS

The public universities in Louisiana have, for the most part, lagged far behind their peer institutions in supporting technology transfer initiatives. There is a perception that some of the policies, practices, and operations of Louisiana university technology transfer do not meet the norm and appear to be user unfriendly. It is recommended that the university personnel engage in open dialog with peer universities, industry, and LED cluster directors to sort out reality from perception and make necessary changes.

Although it is a difficult financial climate to significantly increase funding for university programs, now is the time to do that for the technology transfer initiatives. Throughout this project the university senior leadership has indicated their willingness to turn over a new leaf for technology transfer with an economic development priority. The State has provided funding for universities to focus on capacity building for technology-led economic development and research and development through initiatives such as the Governor's Biotechnology Initiative Fund, Higher Ed Information Technology Initiative and the Gene Therapy Consortium. Louisiana public universities have utilized these resources along with others to develop infrastructure such as the Louisiana Tech Center for Entrepreneurship and Information Technology, the Center for Energy and Environmental Studies and the Center for Applied Learning and Technology. There are many more examples of the existing resources and centers that serve to establish the crucial

necessity of strengthening the focus on university technology transfer capacity and commercialization.

The author would like to express his gratitude to Ms. Sylvia Goldman, LED, Director, Technology, Innovation & Modernization and Project Director for this project. The project would not have been possible without her timely suggestions, excellent organizational and communication skills and ability to bring together the key individuals from the university and LED leadership.

EXHIBIT A

BIOGRAPHICAL SKETCH OF FRANCIS J. MEYER PH.D.

Dr. Meyer has 33 years of experience in academic technology transfer and the medical products industry. Dr. Meyer heads A. M. Pappas & Associates (AMP&A) Enterprise Group, a unit aimed at identifying and commercializing technologies emerging out of the academic, government and industry sectors. Prior to joining AMP&A, Dr. Meyer served as Associate Vice Provost and Director of the Office of Technology Development at UNC-CH where he was responsible for managing, evaluating, patenting, marketing and licensing the university's intellectual and tangible property. He was also responsible for new start-up company development, corporate sponsored research, patent donations and material transfer agreements. Dr. Meyer has taught a technology transfer course at the University of North Carolina at Chapel Hill (UNC-CH) Kenan-Flagler Business School to second year MBA students.

Prior to joining UNC-CH in 1995, Dr. Meyer worked for ten years at Johns Hopkins University School of Medicine, where he served as Associate Dean and Director of the Office of Technology Licensing. He was also an Assistant Professor, Department of Biomedical Engineering, Johns Hopkins University, School of Medicine (part-time).

During his academic technology transfer career, Dr. Meyer has evaluated 1850 inventions, licensed 580 inventions, and assisted with the formation of 17 start-up companies based on university (Johns Hopkins and UNC-CH) technologies.

Prior to working at Johns Hopkins, Dr. Meyer was Vice President of Medical and Regulatory Affairs and a member of the Management Board at Extracorporeal, Inc., a Johnson & Johnson company. He received his BS in Pharmacy from Loyola University New Orleans and his PhD in Pharmacology from the University of Maryland Baltimore.

Dr. Meyer has served on various FDA, National Academy of Sciences, Industry Association, Academic and Professional boards and committees. He was an Instructor at the Kenan-Flagler Business School at UNC Chapel Hill (part-time). He is currently a member of the American Chemical Society, Association of University Technology Managers, Licensing Executive Society, LSU System Research & Technology Foundation Board of Directors, North Carolina Biosciences Organization Board of Directors, Research and Development Advisory Committee of the North Carolina Genomics & Bioinformatics Consortium, and the Wake County (North Carolina) Technology Business Development Advisory Committee.